

REMARKS

The Office Action dated May 9, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-5 are pending in the application. Claims 1 and 5 have been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter has been added. Claims 1-5 are respectfully submitted for consideration.

The Office Action rejected claims 1-5 under 35 U.S.C. §102(e) as being anticipated by Okamoto (U.S. Patent No. 6,887,407). This rejection is respectfully traversed for at least the following reasons.

Claim 1, upon which claims 2-4 are dependent, recites an injection molding machine comprising a mold closing processing section which advances without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing. The injection molding machine further includes a movable-platen-position determination section which determines whether or not the movable platen has reached an injection start position set between a mold opening limit position and a mold closing limit position, and an injection processing section which starts an injection step with advancing the movable platen when the movable platen reaches the injection start position.

Claim 5 recites an injection molding method comprising advancing without stopping a movable platen until a movable mold comes into contact with a stationary

mold so as to perform mold closing, determining whether or not the movable platen has reached an injection start position set between a mold opening limit position and a mold closing limit position, and starting an injection step with advancing the movable platen when the movable platen reaches the injection start position.

As will be discussed below, Okamoto fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

Okamoto discloses a method for producing a laminated article by fusion bonding a skin material to a core material formed from a resin melt by using a horizontal mold clamping type injection molding machine. The method includes the steps of closing a movable mold so that the mold interval between both the movable mold and a fixed mold becomes a predetermined value after the skin material is set up to the movable mold, starting the injection so as to fill a cavity of the mold with a resin melt, moving the movable mold in accordance with the progress of the injection, and filling-up until the mold interval becomes a predetermined value after a predetermined time has passed from the start of the injection. The mold is then clamped after the completion of the injecting operation.

Applicants respectfully submit that Okamoto does not disclose or suggest all of the elements of the present claims. For example, Okamoto fails to disclose or suggest “a mold closing processing section which advances without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “an injection processing section which starts an injection step with

advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 1. Similarly, Okamoto does not disclose or suggest “advancing without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “starting an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 5.

According to embodiments of the present invention, as illustrated in Fig. 4, a mold clamping apparatus 30 starts a mold closing step at timing t11, and starts a pressure increasing step upon completion of the mold closing step at timing t13, whereby the mold clamping force increases. At timing t14, a first mold clamping operation of the mold clamping step is started upon completion of the pressure increasing step. Meanwhile, at timing t12 before the mold clamping step is completed (and before the pressure increasing step is started), an injection apparatus 31 starts an injection step. Therefore, in the injection apparatus 31, since a cooling step can be completed quickly, the molding cycle can be shortened.

Further, as described in the present specification at paragraph 0034, a movable platen 23 does not stop until a movable mold 24 comes into engagement with a stationary mold 14, and a mold closing operation is performed through utilization of the internal force of the movable platen 23 during advance movement. Thus, according to embodiments of the present invention, during operation of the mold closing step, movement of the movable platen 23, advancing at high speed, is not required to stop. As

a result, no energy is needed to brake the movable platen 23, so that consumed electrical power can be reduced.

Okamoto, on the other hand, only discloses that, after the skin material is set up in the movable mold, the moveable mold 4 is clamped up to a mold clamping position S0, which is in the range of 2-25mm between the moveable mold and the fixed mold. Accordingly, Okamoto merely discloses that the moveable mold may be moved to a mold clamping position which can be anywhere from 2-25mm between the moveable and fixed molds (Okamoto, Column 5, lines 24-30). Therefore, the movable mold 4 of Okamoto is stopped before the movable mold 4 comes into contact with the stationary mold 3 and a mold closing operation is completed.

Okamoto further discloses that, after the movable mold 4 reaches the mold clamping position S0, the timing of an injection is started in response to the time-out signal of a timer (Okamoto, Column 5, lines 55-60). As a result, according to Okamoto, the injection is started after the mold clamping step is performed. Therefore, Okamoto fails to disclose or suggest “a mold closing processing section which advances without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “an injection processing section which starts an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 1. Similarly, Okamoto does not disclose or suggest “advancing without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “starting an injection

step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 5. Applicants therefore respectfully request that the rejection of claims 1 and 5 be withdrawn.

Claims 2-4 are dependent upon claim 1. Accordingly, claims 2-4 should be allowed for at least their dependence upon claim 1, and for the specific limitations recited therein.

Claims 1-5 were also rejected under 35 U.S.C. §102(b) as being anticipated by Abe (U.S. Patent No. 6,331,263). This rejection is respectfully traversed for at least the following reasons.

Abe discloses a method of producing a laminated structural molding formed from molded resin and an outer layer of facing material. The method includes initially placing the facing material in a mold, injecting molten resin into the mold, and spreading the resin throughout the mold by locating mold sections adjacent to each other at a set compressive force. The partially assembled molding is then subjected to a cooling process in which the compressive force to which the molding is exposed is reduced so that the force is greater than zero but less than the compressive force used to spread the resin.

Applicants respectfully submit that Abe does not disclose or suggest all of the elements of the present claims. For example, Abe fails to disclose or suggest “a mold closing processing section which advances without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,”

and “an injection processing section which starts an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 1. Similarly, Abe does not disclose or suggest “advancing without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “starting an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 5.

Abe teaches that a movable mold section 20B stops moving before completion of a mold closing operation (Abe, Column 8, lines 25-28). Therefore, the movable mold section 20B is stopped before the movable mold section 20B comes into contact with a secured mold section 20A and the mold closing operation is completed. As such, Applicants respectfully submit that Abe fails to disclose or suggest “a mold closing processing section which advances without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “an injection processing section which starts an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 1, and the similar limitations recited in claim 5. As such, Applicants respectfully request that the rejection of claims 1 and 5 be withdrawn.

Claims 2-4 are dependent upon claim 1. Accordingly, claims 2-4 should be allowed for at least their dependence upon claim 1, and for the specific limitations recited therein.

Claims 1-5 were also rejected under 35 U.S.C. §102(b) as being anticipated by Obayashi (U.S. Patent No. 5,547,619). This rejection is respectfully traversed for at least the following reasons.

Obayashi discloses an injection compression molding method. The method includes a mold closing step of moving a mold in a closing direction by means of a crosshead of a toggle mechanism, an injection step of injecting molten resin of a predetermined amount into a mold cavity during or after a mold closing process, a compression step of pressing the molten resin under a state where the crosshead is positioned at a previously decided stroke position for a predetermined period, a strain relieving step of moving the crosshead to a predetermined retract position which is in the rear of the stroke position, to move the mold by a predetermined distance corresponding to the movement in a mold opening direction, thereby relieving strain of a molded piece, and a molded piece removing step of opening the molds to remove the molded piece.

Applicants respectfully submit that Obayashi does not disclose or suggest all of the elements of the present claims. For example, Obayashi fails to disclose or suggest “a mold closing processing section which advances without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “an injection processing section which starts an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 1. Similarly, Obayashi does not disclose or suggest “advancing without stopping a movable platen until a movable mold comes into contact

with a stationary mold so as to perform mold closing,” and “starting an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 5.

Obayashi teaches that after a mold closing operation is completed, a mold clamping step and a compression step are performed (Obayashi, Column 7, lines 9-12). Therefore, Obayashi discloses that a movable mold is stopped upon completion of the mold closing operation. As such, Applicants respectfully submit that Obayashi fails to disclose or suggest “a mold closing processing section which advances without stopping a movable platen until a movable mold comes into contact with a stationary mold so as to perform mold closing,” and “an injection processing section which starts an injection step with advancing the movable platen when the movable platen reaches the injection start position,” as recited in claim 1, and the similar limitations recited in claim 5. As such, Applicants respectfully request that the rejection of claims 1 and 5 be withdrawn.

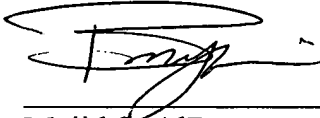
Claims 2-4 are dependent upon claim 1. Accordingly, claims 2-4 should be allowed for at least their dependence upon claim 1, and for the specific limitations recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-5 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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